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EXAMINER	
SCHINDLER, DAVID M	

ART UNIT	PAPER NUMBER
2862	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/645,386	KLOOS ET AL.	
	Examiner	Art Unit	
	David Schindler	2862	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *16-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *16-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Bot Ledynh
Primary Examiner

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the communication received on 6/21/2005.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, 1) the evaluation device of the claims (for example in claim 16), 2) the two speed sensors disclosed immediately adjacent one another of claim 22, 3) both speed sensors and the distance sensor are situated in a common housing of claim 23, and 4) the evaluation device of the speed measuring system is integrated in a sensor housing of Claim 26 and is situated in a separate control unit of Claim 27 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 18, 22, 26, 28, 31, 32, 33, and 34 are objected to because of the following informalities:

As to Claim 18,

The term "than" on lines 10 and 11 is awkward and it is recommended to instead use the term "of."

As to Claim 22,

The term "device" on line 1 appears to be incorrect and it is recommended to instead use the term "system."

As to Claim 26,

The term "device" on line 1 appears to be incorrect and it is recommended to instead use the term "system."

As to Claim 28,

The term "device" on line 1 appears to be incorrect and it is recommended to instead use the term "system."

As to Claim 31,

The phrase "the speed sensor" on lines 3, 4-5, 7, 9, 10, and 11-12 lacks antecedent basis and it is recommended to instead use "the at least one stationary speed sensor."

The phrase "the sensor" on line 11 lacks antecedent basis and it is recommended to instead use "the at least one stationary speed sensor."

The term "of" on line 6 is awkward and it is recommended to instead use the term "on."

The phrase "the actual air gap" on line 12 lacks antecedent basis and it is recommended to instead use "an actual air gap."

The phrase "said distance information" on line 11 lacks antecedent basis and it is recommended to instead use "the actual distance between the at least one stationary speed sensor and the measuring body and the actual change in distance between the speed sensor and the measuring body."

As to Claim 32,

The term "measured" on line 9 is awkward and it is recommended to instead use the term "actual."

The phrase "adapted by" on line 10 does not positively recite the claim limitations and it is recommended to instead use "evaluated according to."

The term "than" on lines 20 and 21 is awkward and it is recommended to instead use the term "of."

As to Claim 33,

The phrase "the sensor and/or to the measuring body" on lines 2-3 lacks antecedent basis and is awkward, and it is recommended to instead use "at least one of the speed sensor and the measuring body."

As to Claim 34,

The phrase "the air gap" on line 2 lacks antecedent basis and it is recommended to instead use "an air gap."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The use of the "distance sensor for determining an actual distance and an actual change in distance between the speed sensor and the measuring body" as recited for example in claim 16 on lines 9-12 is unclear. From this claim, it appears as if there is a determination of the actual distance and the actual change in distance between the speed sensor and the measuring body. However, the specification states "The distance

sensor permanently delivers, for each operating point of the measuring body, an absolute distance or also a change in distance between measuring body and speed sensor" in lines 1-3 of paragraph [019] of page 5. Applicant also states in the specification "a distance sensor 5 is located which scans, for example, according to the inductive or magneto-resistive measuring principle, said distance measuring surface 3. According to the invention, in this manner an actual air gap between speed sensor 4 and measuring body 1 is constantly determined. In one other development, instead of the actual air gap, the actual air gap change can be used" on lines 2-7 of paragraph [032] of page 7. From these statements, it appears that the distance sensor is outputting a signal that represents the distance or the change in the distance between itself and the measuring body, and that this output signal of the distance sensor is what the specification / claims are referring to when it is stated that an actual distance and an actual change in distance are determined. Therefore, it is not clear if the actual distance and the actual change in distance are really being determined, and if they are, it is not clear by what device or mechanism they are being determined by.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 16, 20, 21, 28, 29, and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by Seitzer et al. (herein referred to as "Seitzer") (2001/0009367).

As to Claim 16,

Seitzer discloses magnetic discontinuities provided on a periphery of the measuring body (15), and the speed sensor (SE1), located at a defined distance from the measuring body (Figure 13), reacts to a direction of movement of the discontinuities situated on the measuring body as the measuring body is moved past the speed sensor (Figure 13), wherein the speed measuring system further includes a distance sensor (SE2) for determining an actual distance and an actual change in distance between the speed sensor and the measuring body, and the speed of the measuring body is determined from an actual output signal of the speed sensor evaluated according to an actual signal of the distance sensor in an evaluation device ((5) / signal processing circuit) of the speed measuring system to improve reaction sensitivity of the speed sensor ((Abstract, Lines 1-19) and (Page 3, Paragraph [0040]) and (Page 4, Paragraph [0045]).

It is noted that applicant states in the specification "The distance sensor permanently delivers, for each operating point of the measuring body, an absolute distance or also a change in distance between measuring body and speed sensor in lines 1-3 of paragraph [019] of page 5. Applicant also states in the specification "a distance sensor 5 is located which scans, for example, according to the inductive or magneto-resistive measuring principle, said distance measuring surface 3. According to the invention, in this manner an actual air gap between speed sensor 4 and measuring

body 1 is constantly determined. In one other development, instead of the actual air gap, the actual air gap change can be used" on lines 2-7 of paragraph [032] of page 7. Therefore, noting the above statements and that of applicant's Figure 1, it is the Examiner's interpretation that the phrase "a distance sensor for determining an actual distance and an actual change in distance between the speed sensor and the measuring body" on lines 9-12 means that the distance sensor is outputting a signal that represents the distance or the change in the distance between itself and the measuring body. It is noted to applicant that the distance sensor in applicant's figure 1 is next to the speed sensor.

It is also noted to applicant that it is inherent for a magnetoresistive sensor to output a distance signal as a magnetic body rotates near it. The magnetoresistive sensor will output a signal that is directly related to the position of the magnetic body or part of the magnetic body in relative relation to the magnetoresistive sensor. The closer the magnetic body or a part of the magnetic body is to the sensor, the greater the amplitude of the output signal of the sensor. The farther away the magnetic body or a part of the magnetic body is to the sensor, the lower the amplitude of the output signal of the sensor. The output of the sensor therefore would include an actual distance and an actual change in distance. A reference has been provided in the conclusion section at the bottom of this office action which mentions the effect of air gap variations between an MR sensor and ferromagnetic objects

It is also noted to applicant to that the speed sensor must have a maximum and minimum amplitude, and as noted above, as the air gap decreases due to the magnetic

body moving closer, the amplitude will increase, and therefore the maximum and minimum speed signal amplitudes that can be output by the sensor will be increased. As the air gap decreases, the maximum and minimum amplitudes that can be output by the sensor will be decreased.

The above reasoning applies to all claim rejections.

As to Claim 20,

Seitzer discloses the distance sensor scans, without contact, a contour of the measuring body as a distance measuring surface (Figure 6).

As to Claim 21,

Seitzer discloses the speed sensor and the distance sensor are situated in a common housing (3) (Figure 13).

As to Claim 28,

Seitzer discloses the distance sensor works according to a magnetic-resistive measuring principle (Page 2, Paragraph [0033]).

As to Claim 29,

Seitzer discloses the speed sensor works according to a measuring principle in which a speed signal amplitude depends on the distance between the speed sensor and the measuring body (Page 2, Paragraph [0033]).

As to Claim 30,

Seitzer discloses the distance sensor works according to a magnetic-resistive measuring principle (Page 2, Paragraph [0033]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 17, 24, 25, 26, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seitzer et al. (herein referred to as "Seitzer") (2001/0009367) in view of Teramae et al. (herein referred to as "Teramae") (5,539,308).

As to Claim 17,

Sietzer discloses as explained above.

Sietzer does not disclose release thresholds of the speed sensor specific to at least one of the speed sensor and the measuring body are respectively a function of the actual distance between the speed sensor and the measuring body and a function of an actual change in distance between the speed sensor and the measuring body, the evaluation device of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal

amplitude of the speed sensor is greater than an upper release threshold or smaller than a lower release threshold.

Teramae discloses release thresholds (V.sub.TH1+ to V.sub.TH3+ and V.sub.TH1- to V.sub.TH3-) of the speed sensor (11A) specific to the speed sensor (Column 6, Lines 7-10) are respectively a function of the actual distance between the speed sensor and the measuring body (1) (Column 6, Lines 7-10) and a function of an actual change in distance between the speed sensor and the measuring body (Figure 5), the evaluation device (Column 4, Lines 13-14) of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal amplitude of the speed sensor is greater than an upper release threshold or smaller than a lower release threshold ((Column 5, Lines 46-67) and (Column 6, Lines 1-6)).

It would have been obvious to a person of ordinary skill in the art to modify Sietzer to include release thresholds of the speed sensor specific to at least one of the speed sensor and the measuring body are respectively a function of the actual distance between the speed sensor and the measuring body and a function of an actual change in distance between the speed sensor and the measuring body, the evaluation device of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal amplitude of the speed sensor is greater than an upper release threshold or smaller than a lower release threshold as taught by Teramae in order to have reliable measurement of the rotary speed of an object (Column 6, Lines 5-6).

It is noted that the thresholds are specific to the speed sensor in that they are adapted based on the signal of the speed sensor. See for example lines 46-67 of column 5.

As to Claim 24,

Seitzer discloses the maximum and minimum speed amplitudes are stored as sensor-specific characteristic lines in the evaluation device of the speed measuring system ((Figure 6) and (Page 2, Paragraph [0017])).

Seitzer does not disclose the upper and lower release thresholds are stored as sensor-specific characteristic lines in the evaluation device of the speed measuring system.

Teramae discloses the upper and lower release thresholds are stored as sensor-specific characteristic lines in the evaluation device of the speed measuring system ((Figure 7) and (Column 7, Lines 5-12).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer to include the upper and lower release thresholds are stored as sensor-specific characteristic lines in the evaluation device of the speed measuring system as taught by Teramae in order to provide a visual representation of the thresholds.

Note that the oscilloscope or the display (see figure 2 of Teramae) must store the values for at least some time period before it can display them.

As to Claim 25,

Seitzer discloses that the sensor-specific characteristic lines are adaptable (Figure 6).

Note that as the teeth more closer or farther away from the sensors, the signals will vary and therefore the displayed signals will change. Therefore, the displayed and stored values are adaptable.

As to Claim 26,

Seitzer discloses the evaluation device of the speed measuring system is integrated in a sensor housing (Page 2, Paragraph [0033], Lines 1-2).

As to Claim 31,

Seitzer discloses at least one stationary speed sensor (SE1) for detecting speed of a measuring body rotating relative to the speed sensor in which magnetic discontinuities are provided on a periphery of the measuring body, and the speed sensor, located at a defined distance from the measuring body, reacts to a direction of movement of the discontinuities situated of the measuring body as the measuring body is moved past the speed sensor, the speed measuring system further including a distance sensor (SE2) for determining an actual distance between the speed sensor and the measuring body (15) and an actual change in distance between the speed sensor and the measuring body((Figure 13) and ((Abstract, Lines 1-19) and (Page 3, Paragraph [0040]) and (Page 4, Paragraph [0045]).

Seitzer does not disclose the distance information is constantly used to adapt release thresholds of the speed sensor that are specific to the sensor relative to the actual air gap between measuring body and speed sensor.

Teramae discloses the distance information is constantly used to adapt release thresholds of the speed sensor that are specific to the sensor relative to the actual air

gap between measuring body and speed sensor ((Abstract, Lines 7-12) and (Column 5, Lines 46-58)).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer to include the distance information is constantly used to adapt release thresholds of the speed sensor that are specific to the sensor relative to the actual air gap between measuring body and speed sensor as taught by Teramae in order to have reliable measurement of rotary speed of a wheel (Column 6, Line 6).

11. Claims 18 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seitzer et al. (herein referred to as "Seitzer") (2001/0009367) in view of Applicant's Admitted Prior Art (AAPA).

As to Claims 18 and 32,

Seitzer discloses as explained above.

Seitzer further discloses a maximum speed signal amplitude specific to the speed sensor and a minimum speed signal amplitude specific to the measuring body are respectively a function of the actual distance between the speed sensor and the measuring body, and a function of the actual change in distance between the speed sensor and the measuring body (Figure 13). (Please note the explanation of the rejection of Claim 16).

Seitzer does not disclose the evaluation device of the speed measuring system issues a speed unequal to a "zero" value as an actual speed of the measuring only when an actual speed signal amplitude of the speed sensor is smaller by one of a

defined differential amount and a defined percent deviation than the maximum speed signal amplitude or is larger by a defined differential amount than the minimum speed signal amplitude.

AAPA discloses the evaluation device of the speed measuring system issues a speed unequal to a "zero" value as an actual speed of the measuring body only when an actual speed signal of the speed sensor is larger by a defined amount than a lower limiting value of the speed sensor (Page 2, Paragraph [008], Lines 8-14).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer to include the evaluation device of the speed measuring system issues a speed unequal to a "zero" value as an actual speed of the measuring only when an actual speed signal amplitude of the speed sensor is larger by a defined differential amount than the minimum speed signal amplitude given the above disclosure and teaching of AAPA in order to improve the quality of the signal by evaluating distance information between the speed sensor and the measuring body (Page 2, Paragraph [008], Lines 1-4).

12. Claims 19 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seitzer et al. (herein referred to as "Seitzer") (2001/0009367) in view of Bleckmann et al. (herein referred to as "Bleckmann") (6,215,297).

As to Claim 19,

Seitzer discloses as explained above.

Seitzer discloses when an air gap decreases, a maximum and minimum speed

signal amplitudes are increased (Figure 13).

Seitzer does not disclose when the air gap decreases, an upper and a lower release thresholds and maximum are increased.

Bleckmann discloses when the air gap decreases, an upper and a lower release thresholds and maximum are increased (Column 3, Lines 17-19 and 43-60).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer to include when the air gap decreases, an upper and a lower release thresholds and maximum are increased as taught by Bleckmann in order to render testing of the size of the air slot possible even after the assembly of the sensor (Column 2, Lines 23-25).

It is noted to applicant that, as discussed above, that the closer a magnetic body or part of a magnetic body is to the sensor, the greater the amplitude of the output signal of the sensor. Therefore, as the air gap decreases due to the magnetic body moving closer, the amplitude will increase, and therefore the maximum and minimum speed signal amplitudes that can be output by the sensor will be increased.

As to Claim 27,

Seitzer does not disclose the evaluation device of the speed measuring system is situated in a separate control unit.

Bleckmann discloses the evaluation device (7) of the speed measuring system is situated in a separate control unit (Figure 1).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer to include the evaluation device of the speed measuring system is situated in a

separate control unit as taught by Bleckmann in order to move the evaluation unit away from the rotating measuring body in order to reduce the evaluation unit's exposure to heat generated by the measuring body.

It is noted that the electronic controller (evaluation unit) must be located in some sort of housing.

13. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seitzer et al. (herein referred to as "Seitzer") (2001/0009367) in view of Wallrafen (6,417,662).

As to Claim 22,

Seitzer discloses as explained above.

Seitzer does not disclose two speed sensors disposed immediately adjacent one another which detect one of the electric and magnetic discontinuities of the measuring body independently of one another, and the evaluation device takes into account a phase offset between both speed sensor signals so that the speed measuring signal delivers, as an output, at least one of the speed, a direction of rotation, and an angularity of the measuring body.

Wallrafen discloses two speed sensors disposed immediately adjacent one another which detect magnetic discontinuities of the measuring body independently of one another, and the evaluation device takes into account a phase offset between both speed sensor signals so that the speed measuring signal delivers, as an output, of the speed of the measuring body ((Figure 1) and (Abstract, Lines 1-2 and 17-27)).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer to include two speed sensors disposed immediately adjacent one another which detect magnetic discontinuities of the measuring body independently of one another, and the evaluation device takes into account a phase offset between both speed sensor signals so that the speed measuring signal delivers, as an output, of the speed of the measuring body as taught by Wallrafen in order to the measurement signals phase-shifted through about 90° so that the signals can thus be easily linked to form an output signal which is at twice the frequency of the measurement signals (Column 3, Lines 31-34).

As to Claim 23,

Seitzer discloses the distance sensor and a speed sensor in a common housing (Figure 13).

Seitzer does not disclose both speed sensors and the distance sensor are situated in a common housing.

Wallrafen discloses two speed sensors in a common housing (Figure 1).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer to include both speed sensors and the distance sensor are situated in a common housing given the above disclosure and teaching of Wallrafen in order to protect the sensors from external elements and to reduce the amount of spaces the sensors take up by combining them into a common housing.

14. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seitzer et al. (herein referred to as "Seitzer") (2001/0009367) in view of Applicant's Admitted Prior Art (AAPA) and in further view of Teramae et al. (herein referred to as "Teramae") (5,539,308).

Sietzer in view of AAPA discloses as explained above.

Sietzer in view of AAPA does not disclose release thresholds of the speed sensor specific to the speed sensor and/or the measuring body are respectively a function of the actual distance between the speed sensor and the measuring body and a function of an actual change in distance between the speed sensor and the measuring body, the evaluation device of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal amplitude of the speed sensor is greater than an upper release threshold or smaller than a lower release threshold.

Teramae discloses release thresholds (V.sub.TH1+ to V.sub.TH3+ and V.sub.TH1- to V.sub.TH3-) of the speed sensor (11A) specific to the speed sensor (Column 6, Lines 7-10) are respectively a function of the actual distance between the speed sensor and the measuring body (1) (Column 6, Lines 7-10) and a function of an actual change in distance between the speed sensor and the measuring body (Figure 5), the evaluation device (Column 4, Lines 13-14) of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal amplitude of the speed sensor is greater than an

upper release threshold or smaller than a lower release threshold ((Column 5, Lines 46-67) and (Column 6, Lines 1-6)).

It would have been obvious to a person of ordinary skill in the art to modify Sietzer in view of AAPA to include release thresholds of the speed sensor specific to at least one of the speed sensor and the measuring body are respectively a function of the actual distance between the speed sensor and the measuring body and a function of an actual change in distance between the speed sensor and the measuring body, the evaluation device of the speed measuring system issues a speed unequal to a "zero" value, as the actual speed of the measuring body, only when an actual speed signal amplitude of the speed sensor is greater than an upper release threshold or smaller than a lower release threshold as taught by Teramae in order to have reliable measurement of the rotary speed of an object (Column 6, Lines 5-6).

It is noted that the thresholds are specific to the speed sensor in that they are adapted based on the signal of the speed sensor. See for example lines 46-67 of column 5.

15. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seitzer et al. (herein referred to as "Seitzer") (2001/0009367) in view of Applicant's Admitted Prior Art (AAPA) and in further view of Teramae et al. (herein referred to as "Teramae") (5,539,308) and in further view of Bleckmann et al. (herein referred to as "Bleckmann") (6,215,297).

As to Claim 34,

Seitzer in view of AAPA and Teramae disclose as explained above.

Seitzer discloses when an air gap decreases, a maximum and minimum speed signal amplitudes are increased (Figure 13).

Seitzer in view of AAPA and Teramae does not disclose when the air gap decreases, an upper and a lower release thresholds and maximum are increased.

Bleckmann discloses when the air gap decreases, an upper and a lower release thresholds and maximum are increased (Column 3, Lines 17-19 and 43-60).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer in view of AAPA and Teramae to include when the air gap decreases, an upper and a lower release thresholds and maximum are increased as taught by Bleckmann in order to render testing of the size of the air slot possible even after the assembly of the sensor (Column 2, Lines 23-25).

It is noted to applicant that, as discussed above, that the closer a magnetic body or part of a magnetic body is to the sensor, the greater the amplitude of the output signal of the sensor. Therefore, as the air gap decreases due to the magnetic body moving closer, the amplitude will increase, and therefore the maximum and minimum speed signal amplitudes that can be output by the sensor will be increased.

As to Claim 35,

Seitzer discloses the maximum and minimum speed amplitudes are stored as sensor-specific characteristic lines in the evaluation device of the speed measuring system ((Figure 6) and (Page 2, Paragraph [0017])).

Seitzer in view of AAPA does not disclose the upper and lower release thresholds are stored as sensor-specific characteristic lines in the evaluation device of the speed measuring system.

Teramae discloses the upper and lower release thresholds are stored as sensor-specific characteristic lines in the evaluation device of the speed measuring system ((Figure 7) and (Column 7, Lines 5-12).

It would have been obvious to a person of ordinary skill in the art to modify Seitzer in view of AAPA to include the upper and lower release thresholds are stored as sensor-specific characteristic lines in the evaluation device of the speed measuring system as taught by Teramae in order to provide a visual representation of the thresholds.

Note that the oscilloscope or the display (see figure 2 of Teramae) must store the values for at least some time period before it can display them.

Response to Arguments

16. Applicant's arguments with respect to claims 16, 20, 21, and 28-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. 1) U.S. Pat. No. 6,100,682 to Schroeder which discloses "as an air gap between the sensor and the target wheel increases, the tooth/slot output voltage

of the sensor decreases ... At smaller air gaps ... the signal magnitude is larger ... This results in the sensor's dependence upon ... the air gap." (see Column 1, Lines 41-52). Also note Figure 3 and lines 41-49 of column 3, and 2) U. S. Pat. Pub. 2002/0171416 to Schroeder which discloses "It is known that air gap variations between the MR device and ferromagnetic materials or objects will affect the resistance of the MR devices with larger air gaps producing less resistance and decreased output signals" (Page 1, Paragraph [0006], Last four lines).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Examiner
Art Unit 2862

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